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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,208	09/30/2003	Young-Ki Kim	6192.0318.US	9592

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EXAMINER

EISEN, ALEXANDER

ART UNIT PAPER NUMBER

2629

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/673,208

Applicant(s)

KIM ET AL.

Examiner

Alexander Eisen

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 9 is/are rejected.
- 7) ☒ Claim(s) 3,5-8 and 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify correctly the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55, and any foreign application having a filing date before that of the application on which priority is claimed, by specifying the application number, country, day, month and year of its filing.

The priority date in the oath is shown as **02/10/2002**, which would read 10 February 2002 and thus would not render the priority valid since it would be more than one year between national and US filing. The actual and correct date is **10/02/2002** – 02 October 2002. Appropriate correction is required in the new oath or declaration.

Drawings

3. The drawings are objected to because the numerals “**1204**” (number of rows) in FIG. 3A through FIG. 8 should be **1024**, because that what is taught in the specs describing an example in relation to the drawings in FIGS 3A-8, where the number of the rows is 1024 .
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended.

5. The figure or figure number of an amended drawing should not be labeled as “amended.”

If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

6. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claims 4-6 are objected to because of the following informalities:

- Claim 4 recites: “the first modulation time for *the second pixel* row farther from inputs of data voltages has a larger value”. There is no antecedent basis for the limitation “the second pixel row”. It is believed that the intention was: - - the first modulation time for *one of the second pixel rows* farther from inputs of data voltages has a larger value *than the first modulation times for the second pixel rows preceding said one of the second pixel rows--*.
- Claims 5-6 recite the expression: “ $A - B(I - I_{last})^P$ ”. The specification uses terms “ $W_{1024} - A(2i - 1024)^N$ ”. Clearly the meaning of symbol “A” is different in the two expressions. While the Applicant is free to select any symbol for describing a variable, to preclude a confusion it is suggested that the expression in claims 5 and 6 to be in concurrence with

Art Unit: 2629

that of the specs, e.g. -- $B - A(I - I_{last})^p$ -, where it's understood that $B = W_{last}$ (or W_{1024} in the exemplary embodiment), and A is the same as in specs.

- Claim 5 also recites: “(p = 1, 2, ...)”, which renders this claim indefinite. It is not clear what is the scope of the claim since the bounds for the polynomial degree are not shown definitively. The specification states in page 8, lines 21-22 that the PWM time is determined by “first through forth order polynomials”. Changing the above limitation to -- (p = 1, 2, 3, 4), would overcome this objection.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Song et al., US 6,842,161, hereinafter Song.

With respect to claim 1 Song discloses a liquid crystal display comprising a liquid crystal panel (FIG. 6) including a plurality of pixel rows GL, a plurality of data lines DL for transmitting data voltages to the pixel rows, a plurality of gate lines for transmitting gate signals to the pixel rows; a signal controller for generating a control signal for controlling timing of the gate signals; a data driver 12 for providing the data voltages for the pixel rows through the data lines under control of the signal controller; and a gate driver 10 for providing the gate signals to

the pixel rows in sequence through the gate lines based on the control signal of the signal controller, wherein the pixel rows includes a plurality of pairs of first and second pixel rows adjacent to each other, sequentially arranged in a data voltage moving direction, and supplied with the data voltages having different polarities, the gate signals include first and second gate signals respectively applied to the first and the second pixel rows, and pulse widths of the second gate signals are increased by first modulation times (see FIG. 8; col. 5, ll. 44-66).

10. Claims 1, 2, 4 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al., US 2003/0038766, hereinafter Lee.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claim 1 and 2 Lee discloses a liquid crystal display comprising a liquid crystal panel (FIG. 1) including a plurality of pixel rows G, a plurality of data lines D for transmitting data voltages to the pixel rows, a plurality of gate lines for transmitting gate signals to the pixel rows; a signal controller 400 for generating a control signal for controlling timing of the gate signals; a data driver 300 for providing the data voltages for the pixel rows through the data lines under control of the signal controller; and a gate driver 2000 for providing the gate signals to the pixel rows in sequence through the gate lines based on the control signal of the signal controller, wherein the pixel rows includes a plurality of pairs of first and second pixel

Art Unit: 2629

rows adjacent to each other, sequentially arranged in a data voltage moving direction, and supplied with the data voltages having different polarities, the gate signals include first and second gate signals respectively applied to the first and the second pixel rows, and pulse widths of the second gate signals are increased by first modulation times (see FIGS. 2-4 and related description thereof in the specification).

As pertaining to claim 2, the pulse widths of the first gate signals are decreased by second modulation times (see FIGS. 2-3).

As pertaining to claim 4, the first modulation time for the second pixel row farther from inputs of the data voltages has a larger value (see FIG. 4 for example; the pulse on g4 is larger than the pulse on g1).

As per claim 9, the liquid crystal display of claim 1, wherein the signal controller provides a gate clock with a period increasing based on the first modulation time, and a pulse of each gate signal starts in synchronization with a rising edge of the gate clock and finishes at a next rising edge of the gate clock.

Allowable Subject Matter

11. Claims 3, 5-8 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art teaches or fairly suggest the limitations recited in dependent claims 3, 5-8 and 10-12 in conjunction with the subject matter delineated in parent claims, which these claims are dependent upon; namely, none of the prior art suggest a modification of, or a combination

Art Unit: 2629

with, the cited prior art so as to arrive to the invention claimed, that the polarity of the data voltages are reversed every two pixel rows and the first modulation times are substantially equal to the respective second modulation times; or that the first modulation time for a third pixel row among the second rows is determined by: $A-B(I-I_{last})^p$ ($p=1, 2, 3, 4$); or that the liquid crystal display further comprises a delay circuit including a resistor and a capacitor connected in series between the signal controller and a reference voltage, the signal controller provides a first signal for the delay circuit and receives a second signal from the delay circuit, and the first modulation time is determined by a delay between the first signal and the second signal.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takahata, JP 04-322216, discloses driving an LCD having variable width gate pulses and synchronizing clocks.

Ohwada et al., US 4,750,813, discloses driving of an LCD using delayed pulses controlled by mono-vibrators and variable resistors (FIG. 7).

Takabatake et al., US 5,430,460, discloses driving LCD with variable gate pulses for different polarities of data signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (571) 272-7687, RightFax (571) 273-7687. The examiner can normally be reached on M-F (9:00-5:00).

Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alexander Eisen
Primary Examiner
Art Unit 2629

27 May 2006